

# Texas Water Development Board



# WATER Conditions

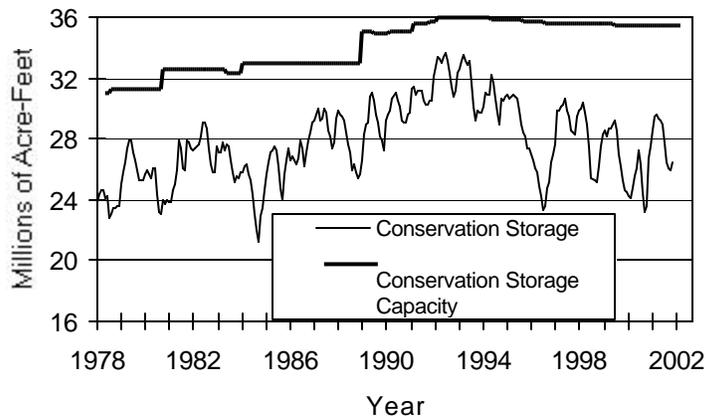
## RESERVOIR STORAGE

*November 2001*

Near the end of November, the 77 reservoirs monitored for this report held 26.4 million acre-feet in conservation storage, or 76.7 percent of the conservation storage capacity of the State's major reservoirs. Statewide storage increased by 0.5 million acre-feet (+1.4% of conservation storage capacity) during the month. Compared to November 2000, storage is down 0.29 million acre-feet (-0.8% of conservation storage capacity), and below the historical median for this time of year.

Storage slightly increased or held steady in most Regions this month; however, the North Central and High Plains Regions decreased marginally (-0.4% and -1.1%, respectively). The Upper Coast Region remained at capacity (100%), and the Trans-Pecos Region (11.0%) remained below 25%. Storage is at 100% in 20 reservoirs, 6 more than last month. Storage is down relative to this time last year in the High Plains (-13.9%), Low Rolling Plains (-1.9%), East (-1.6%), Trans-Pecos (-9.9%) and Edwards Plateau (-8.6%) Regions.

### CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS



Current data are based on elevation near end of month at 77 reservoirs that represent 98 percent of total conservation storage capacity in Texas reservoirs having a capacity of 5,000 acre-feet or more.

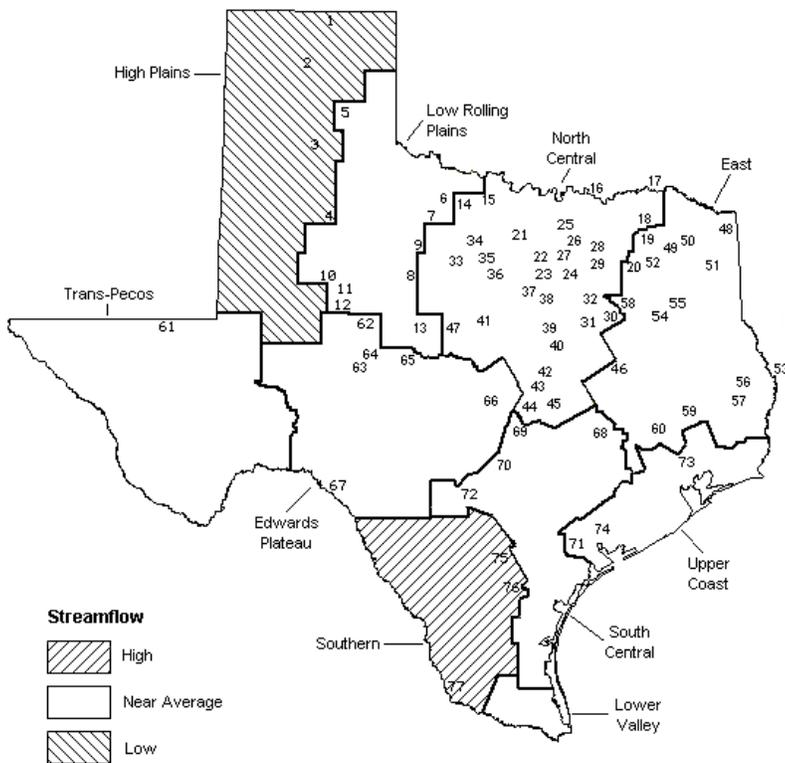
# STREAMFLOW

Of 29 reporting index stations in November, computed 30-day mean flows were high (5% - 30% exceedance) at 8 stations, near normal (30% - 70% exceedance) at 17 stations, low (70% - 95% exceedance) at 3 stations, and very low (95% - 100% exceedance) at 1 station. Compared to October, flows increased at 15 index stations, decreased at 13 stations, and remained unchanged at 1 station.

On a regional basis, flows in November were high in the Southern Region, low in the High Plains Region and normal in all other Regions. Very low flows were reported at the station on the Pease River near Vernon.

## NOVEMBER STREAMFLOW CONDITIONS

Reservoirs Shown on Map



- |                                  |                             |
|----------------------------------|-----------------------------|
| 1. Palo Duro Reservoir           | 40. Waco Lake               |
| 2. Lake Meredith                 | 41. Proctor Lake            |
| 3. MacKenzie Reservoir           | 42. Belton Lake             |
| 4. White River Lake              | 43. Stillhouse Hollow Lake  |
| 5. Greenbelt Reservoir           | 44. Lake Georgetown         |
| 6. Lake Kemp                     | 45. Granger Lake            |
| 7. Miller's Creek Reservoir      | 46. Lake Limestone          |
| 8. Fort Phantom Hill Reservoir   | 47. Lake Brownwood          |
| 9. Lake Stamford                 | 48. Wright Patman Lake      |
| 10. Lake J. B. Thomas            | 49. Lake Cypress Springs    |
| 11. Lake Colorado City           | 50. Lake Bob Sandlin        |
| 12. Champion Creek Reservoir     | 51. Lake O' the Pines       |
| 13. Hords Creek Lake             | 52. Lake Fork Reservoir     |
| 14. Lake Kickapoo                | 53. Toledo Bend Reservoir   |
| 15. Lake Arrowhead               | 54. Lake Palestine          |
| 16. Lake Texoma                  | 55. Lake Tyler              |
| 17. Pat Mayse Lake               | 56. Sam Rayburn Reservoir   |
| 18. Cooper Lake                  | 57. B. A. Steinhagen Lake   |
| 19. Lake Sulphur Springs         | 58. Cedar Creek Reservoir   |
| 20. Lake Tawakoni                | 59. Lake Livingston         |
| 21. Bridgeport Reservoir         | 60. Lake Conroe             |
| 22. Eagle Mountain Reservoir     | 61. Red Bluff Reservoir     |
| 23. Benbrook Lake                | 62. E. V. Spence Reservoir  |
| 24. Joe Pool Lake                | 63. Twin Buttes Reservoir   |
| 25. Ray Roberts Lake             | 64. O. C. Fisher Lake       |
| 26. Lewisville Lake              | 65. O. H. Ivie Reservoir    |
| 27. Grapevine Lake               | 66. Lake Buchanan           |
| 28. Lavon Lake                   | 67. Intl. Amistad Reservoir |
| 29. Lake Ray Hubbard             | 68. Somerville Lake         |
| 30. Richland-Chambers Creek Lake | 69. Lake Travis             |
| 31. Navarro Mills Lake           | 70. Canyon Lake             |
| 32. Bardwell Lake                | 71. Coletto Creek Reservoir |
| 33. Hubbard Creek Reservoir      | 72. Medina Lake             |
| 34. Lake Graham                  | 73. Lake Houston            |
| 35. Possum Kingdom Lake          | 74. Lake Texana             |
| 36. Lake Palo Pinto              | 75. Choke Canyon Reservoir  |
| 37. Lake Granbury                | 76. Lake Corpus Christi     |
| 38. Lake Pat Cleburne            | 77. Intl. Falcon Reservoir  |
| 39. Whitney Lake                 |                             |

## CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	No. on Map	Conservation	Conservation		Change since		Change since		
		Storage Capacity (acre-feet)	Storage Late November 2001 (acre-feet)	(%)	Late October 2001 (acre-feet)	(%)	Late November 2000 (acre-feet)	(%)	
<b>HIGH PLAINS</b>									
Palo Duro Reservoir	1	60,900	6,920	11	-300	0	-7,390	-12	
Lake Meredith (Texas)	2	500,000	262,900	53	-6,900	-1	-78,300	-16	
Lake Meredith (Texas and Oklahoma)	(2)	779,560	262,900	34	-6,900	-1	-78,300	-10	
MacKenzie Reservoir	3	46,250	8,690	19	-80	0	580	1	
White River Lake	4	31,850	7,950	25	320	1	-4,010	-13	
TOTAL		639,000	286,460	45	-6,960	-1	-89,120	-14	
<b>LOW ROLLING PLAINS</b>									
Greenbelt Reservoir	5	58,200	24,010	41	1,490	3	850	1	
Lake Kemp	6	319,600	133,100	42	15,800	5	-5,700	-2	
Miller's Creek Reservoir	7	27,890	12,960	46	260	1	4,700	17	
Fort Phantom Hill Reservoir	8	70,030	31,030	44	400	1	-9,910	-14	
Lake Stamford	9	52,700	15,970	30	820	2	6,860	13	
Lake J. B. Thomas	10	202,300	22,140	11	5,910	3	-6,530	-3	
Lake Colorado City	11	30,800	19,310	63	2,550	8	-2,130	-7	
Champion Creek Reservoir	12	41,600	2,200	5	10	0	-2,230	-5	
Hords Creek Lake	13	8,600	3,230	38	-40	0	-1,030	-12	
TOTAL		811,720	263,950	33	27,200	3	-15,120	-2	
<b>NORTH CENTRAL</b>									
Lake Kickapoo	14	106,000	73,280	69	-2,520	-2	15,410	15	
Lake Arrowhead	15	262,100	155,600	59	-3,000	-1	40,400	15	
Lake Texoma	16	2,722,300	2,612,000	96	6,000	0	-110,300	-4	
Pat Mayse Lake	17	124,500	117,000	94	-1,100	-1	-7,500	-6	
Cooper Lake	18	273,000	273,000	100	0	0	0	0	
Lake Sulphur Springs	19	17,710	12,020	68	710	4	-5,690	-32	
Lake Tawakoni	20	936,200	820,200	88	-9,800	-1	-116,000	-12	
Bridgeport Reservoir	21	374,830	290,700	78	-9,000	-2	97,800	26	
Eagle Mountain Reservoir	22	178,380	145,900	82	-1,900	-1	33,400	19	
Benbrook Lake	23	88,200	67,610	77	1,750	2	14,410	16	
Joe Pool Lake	24	175,800	174,600	99	-1,000	-1	7,200	4	
Ray Roberts Lake	25	798,760	749,800	94	-8,300	-1	252,600	32	
Lewisville Lake	26	555,000	508,500	92	-19,600	-4	130,500	24	
Grapevine Lake	27	187,700	142,600	76	-1,400	-1	10,500	6	
Lavon Lake	28	443,800	297,600	67	-17,500	-4	-76,500	-17	
Lake Ray Hubbard	29	413,420	380,500	92	1,200	0	2,800	1	
Richland-Chambers Creek Lake	30	1,103,820	1,026,000	93	-12,000	-1	-77,820	-7	
Navarro Mills Lake	31	55,810	55,810	100	0	0	0	0	
Bardwell Lake	32	53,580	45,790	85	370	1	-3,590	-7	
Hubbard Creek Reservoir	33	317,800	121,600	38	-2,400	-1	-20,800	-7	
Lake Graham	34	45,000	34,390	76	-490	-1	-2,660	-6	
Possum Kingdom Lake	35	551,820	462,300	84	6,900	1	-15,800	-3	
Lake Palo Pinto	36	27,650	15,730	57	-330	-1	5,060	18	
Lake Granbury	37	135,680	115,800	85	-1,000	-1	-12,300	-9	
Lake Pat Cleburne	38	25,300	19,930	79	-210	-1	-1,390	-5	
Whitney Lake	39	622,800	454,200	73	-6,100	-1	-44,000	-7	
Waco Lake	40	144,500	144,500	100	10,500	7	0	0	
Proctor Lake	41	55,590	37,310	67	-860	-2	17,870	32	
Belton Lake	42	434,500	434,500	100	5,200	1	0	0	
Stillhouse Hollow Lake	43	226,060	226,060	100	360	0	0	0	
Lake Georgetown	44	37,010	37,010	100	7,150	19	15,080	41	
Granger Lake	45	54,280	54,280	100	0	0	0	0	
Lake Limestone	46	215,750	207,600	96	4,500	2	-8,150	-4	
Lake Brownwood	47	143,400	110,600	77	1,500	1	1,000	1	
TOTAL		11,908,050	10,424,320	88	-52,370	0	141,530	1	

## CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

Name of Lake or Reservoir	No. on Map	Conservation	Conservation	Change since		Change since		
		Storage Capacity (acre-feet)	Storage Late November 2001 (acre-feet) (%)	Late October 2001 (acre-feet) (%)	Late November 2000 (acre-feet) (%)			
<b>EAST</b>								
Wright Patman Lake	48	142,700	142,700	100	0	0	0	0
Lake Cypress Springs	49	66,800	66,800	100	0	0	0	0
Lake Bob Sandlin	50	202,300	202,300	100	0	0	0	0
Lake O' the Pines	51	252,000	252,000	100	0	0	0	0
Lake Fork Reservoir	52	635,200	635,200	100	0	0	0	0
Toledo Bend Reservoir	53	4,472,900	3,282,000	73	159,000	4	-661,000	-15
Lake Palestine	54	411,300	407,800	99	6,300	2	-3,500	-1
Lake Tyler	55	73,700	73,700	100	0	0	13,000	18
Sam Rayburn Reservoir	56	2,876,300	2,615,000	91	-36,000	-1	465,000	16
B. A. Steinhagen Lake	57	94,200	30,760	33	-1,750	-2	-49,470	-53
Cedar Creek Reservoir	58	637,050	626,600	98	-4,700	-1	38,700	6
Lake Livingston	59	1,750,000	1,750,000	100	18,000	1	0	0
Lake Conroe	60	429,900	420,700	98	5,600	1	2,700	1
<b>TOTAL</b>		<b>12,044,350</b>	<b>10,505,560</b>	<b>87</b>	<b>146,450</b>	<b>1</b>	<b>-194,570</b>	<b>-2</b>
<b>TRANS-PECOS</b>								
Red Bluff Reservoir	61	307,000	33,800	11	3,430	1	-30,320	-10
<b>TOTAL</b>		<b>307,000</b>	<b>33,800</b>	<b>11</b>	<b>3,430</b>	<b>1</b>	<b>-30,320</b>	<b>-10</b>
<b>EDWARDS PLATEAU</b>								
E. V. Spence Reservoir	62	488,760	61,920	13	4,970	1	-25,290	-5
Twin Buttes Reservoir	63	177,800	7,560	4	440	0	-570	0
O.C. Fisher Lake	64	119,200	4,590	4	470	0	-5,710	-5
O. H. Ivie Reservoir	65	554,340	260,300	47	-2,200	0	-61,900	-11
Lake Buchanan	66	896,980	759,800	85	20,700	2	28,800	3
Amistad Reservoir (Texas)	67	1,771,030	754,000	43	59,000	3	-280,000	-16
Amistad Reservoir (Texas and Mexico)	(67)	3,151,300	931,000	30	49,000	2	-264,000	-8
<b>TOTAL</b>		<b>4,008,110</b>	<b>1,848,170</b>	<b>46</b>	<b>83,380</b>	<b>2</b>	<b>-344,670</b>	<b>-9</b>
<b>SOUTH CENTRAL</b>								
Somerville Lake	68	155,060	155,060	100	160	0	13,760	9
Lake Travis	69	1,144,100	1,144,100	100	169,200	15	0	0
Canyon Lake	70	385,600	385,600	100	1,500	0	0	0
Coletto Creek Reservoir	71	35,060	31,710	90	160	0	350	1
Medina Lake	72	254,000	252,400	99	17,800	7	72,100	28
<b>TOTAL</b>		<b>1,973,820</b>	<b>1,968,870</b>	<b>100</b>	<b>188,820</b>	<b>10</b>	<b>86,210</b>	<b>4</b>
<b>UPPER COAST</b>								
Lake Houston	73	128,860	128,860	100	0	0	0	0
Lake Texana	74	157,900	157,900	100	1,300	1	800	1
<b>TOTAL</b>		<b>286,760</b>	<b>286,760</b>	<b>100</b>	<b>1,300</b>	<b>0</b>	<b>800</b>	<b>0</b>

## CONSERVATION STORAGE DATA FOR SELECTED MAJOR TEXAS RESERVOIRS

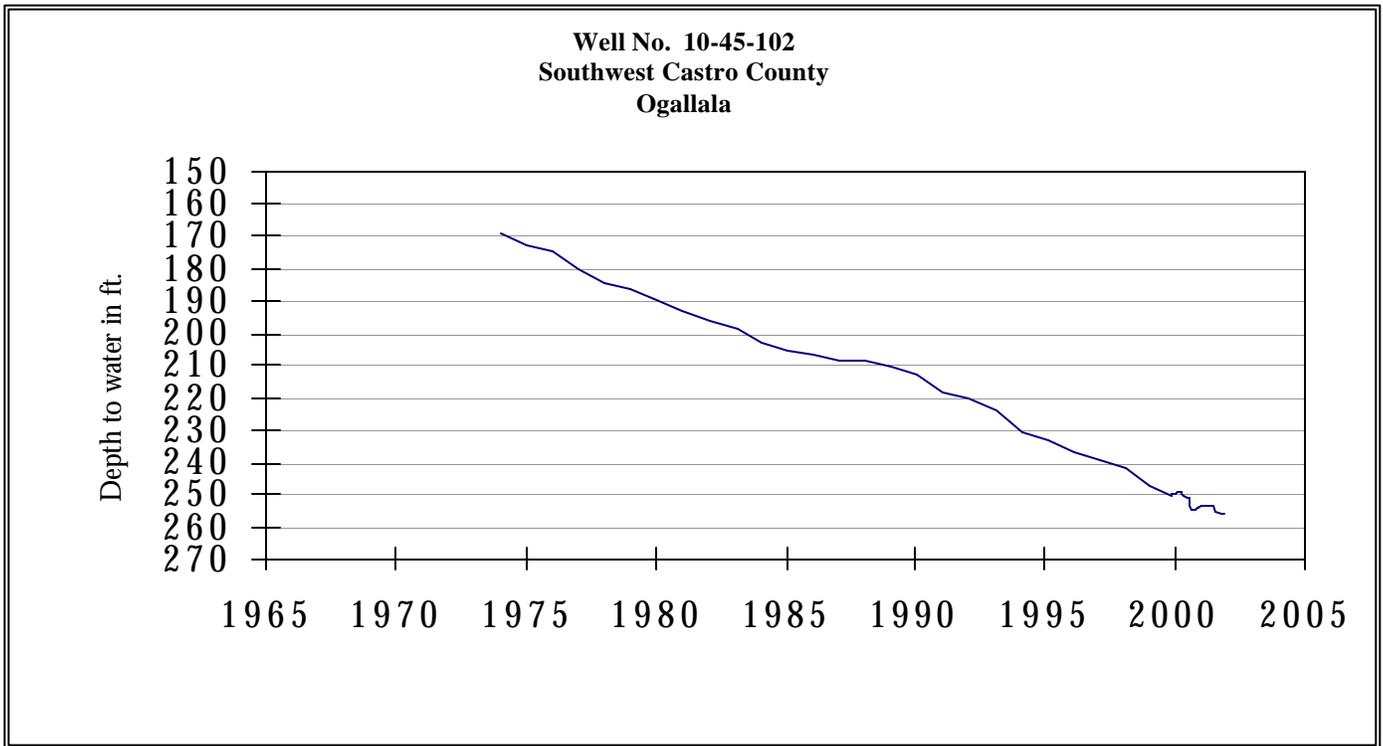
Name of Lake or Reservoir	No. on Map	Conservation Storage Capacity  (acre-feet)	Conservation Storage Late November 2001 (acre-feet) (%)	Change since Late October 2001 (acre-feet) (%)	Change since Late November 2000 (acre-feet) (%)
<b>SOUTHERN</b>					
Choke Canyon Reservoir	75	695,260	287,000 41	61,000 9	14,000 2
Lake Corpus Christi	76	241,240	241,240 100	77,540 32	146,740 61
Falcon Reservoir (Texas)	77	1,555,120	291,000 19	-38,000 -2	-1,000 0
Falcon Reservoir (Texas and Mexico)	(77)	2,653,290	452,000 17	0 0	121,000 5
TOTAL		2,491,620	819,240 33	100,540 4	159,740 6
 <b>STATE TOTAL</b>		 34,470,430	 26,437,130 77	 491,790 1	 -285,520 -1

**Note:**

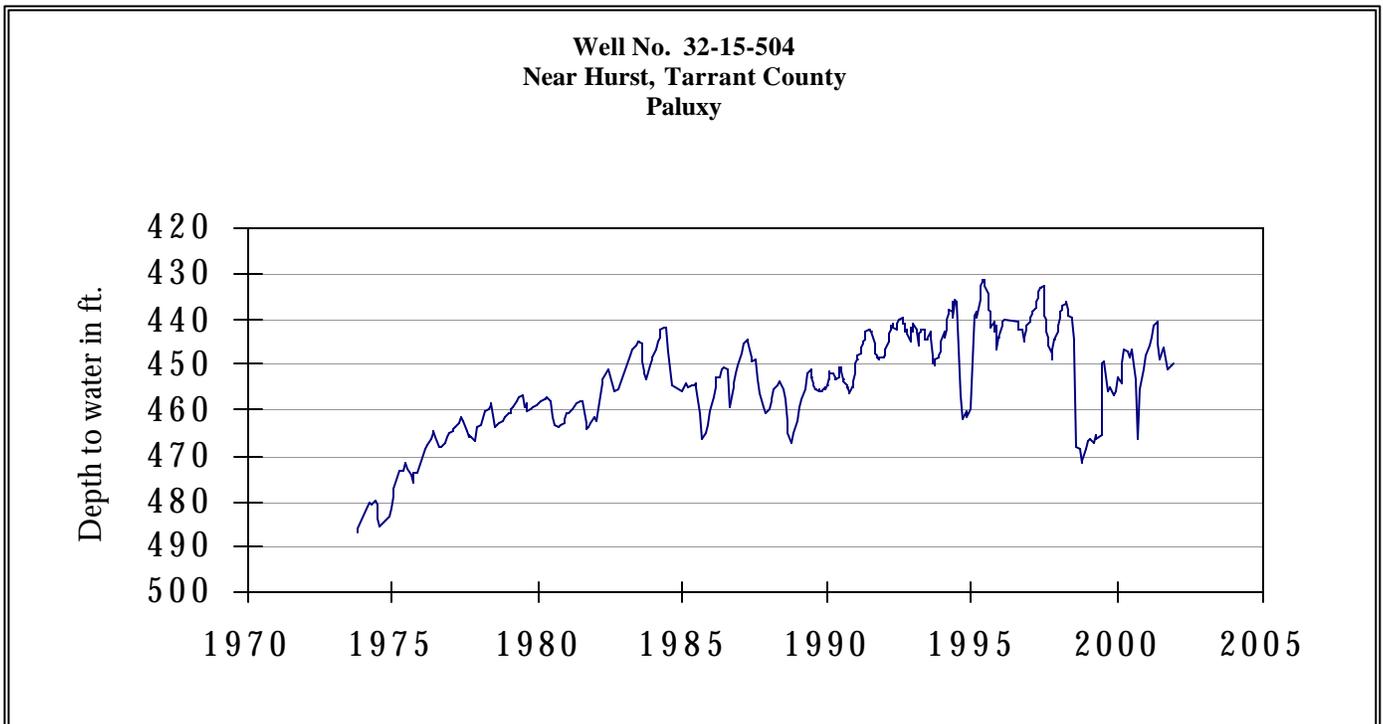
Conservation storage capacity is the space available to store water above the level of invert of lowest outlet works and below the level of top of conservation pool or normal maximum operating level. Conservation storage refers to the volume of water held within the conservation storage space. Not included is any water in flood control storage (above the top of conservation pool or normal maximum operating level), or any water in so called dead storage (in the bottom of the reservoir, below the invert of lowest outlet works and consequently not removable by gravity flow alone.) Percentage of conservation storage is based on the conservation storage capacity of the reservoir and the conservation storage in the reservoir for date shown. Percent change is given by % Change = 100 \* (current conservation storage - past conservation storage)/conservation storage capacity.

Current data are based on elevations near end of month at 77 reservoirs that together represent 98 percent of the total conservation storage capacity of major Texas reservoirs (those with capacity of 5,000 acre-feet or more each). Figures in parentheses for Lake Meredith represent the total conservation storage excluding 58,014 acre-feet of dead storage and are not included in State total. Preliminary figures are shown for the United States' share of conservation storage in International Amistad and International Falcon Reservoirs; the estimates may be subject to revision on completion of international water accounting. Texas (United States' share) and Mexico and are not included in State total.

# NOVEMBER GROUND WATER LEVELS IN OBSERVATION WELLS

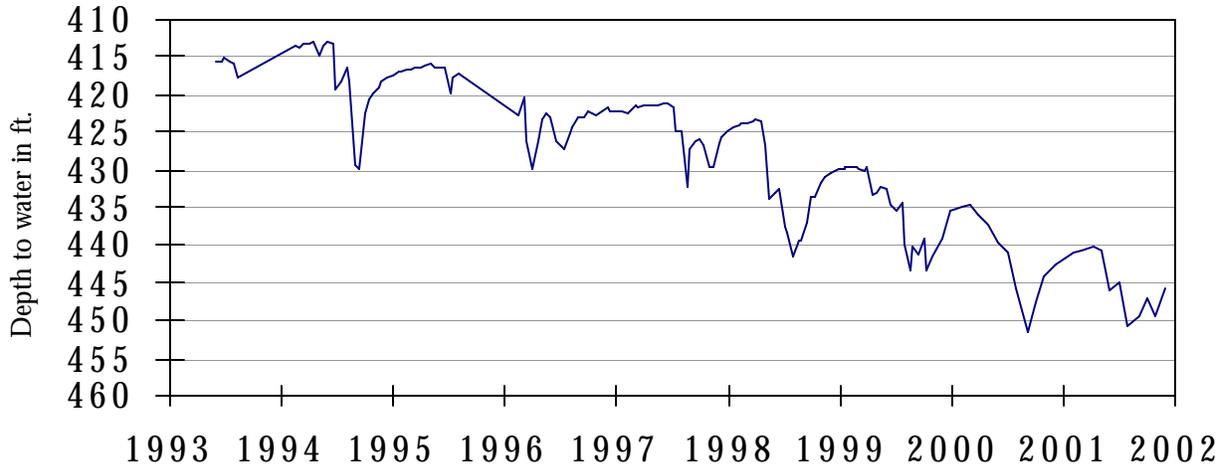


The late November water-level measurement in this Ogallala aquifer well, elevation 3,816 feet above sea level, was 255.88 feet below land surface. This measurement was 0.15 feet above last month's measurement, 1.93 feet below last year's measurement, and 99.88 feet below the initial measurement recorded in 1968.



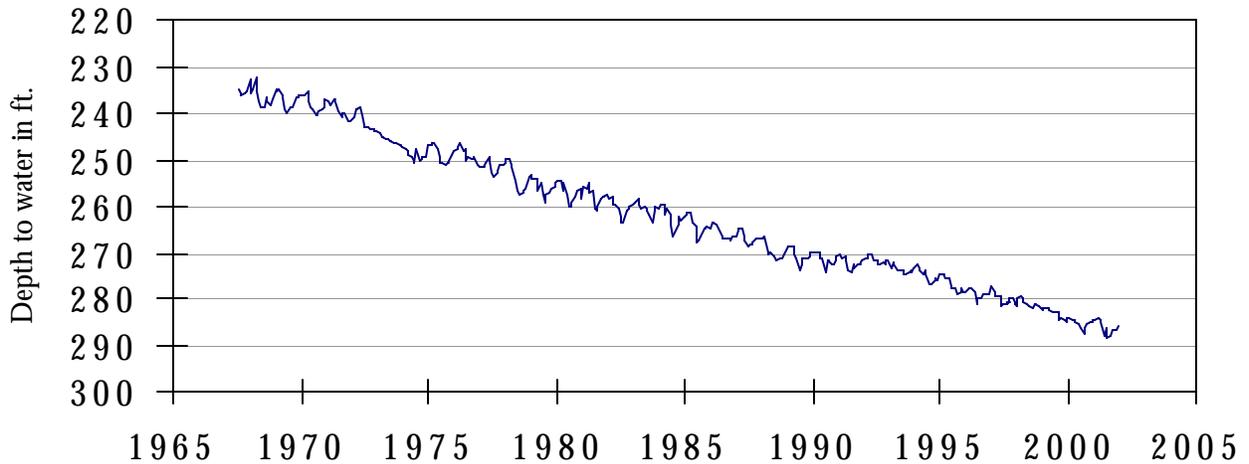
The late November water-level measurement in this Paluxy Formation Trinity aquifer well, elevation 535 feet above sea level, was 449.85 feet below land surface. This measurement was 0.63 feet above last month's measurement, 1.27 feet above last year's measurement, and 56.46 feet below the initial measurement recorded in 1953.

**Well No. 40-35-404  
Gatesville, Coryell County  
Hosston**



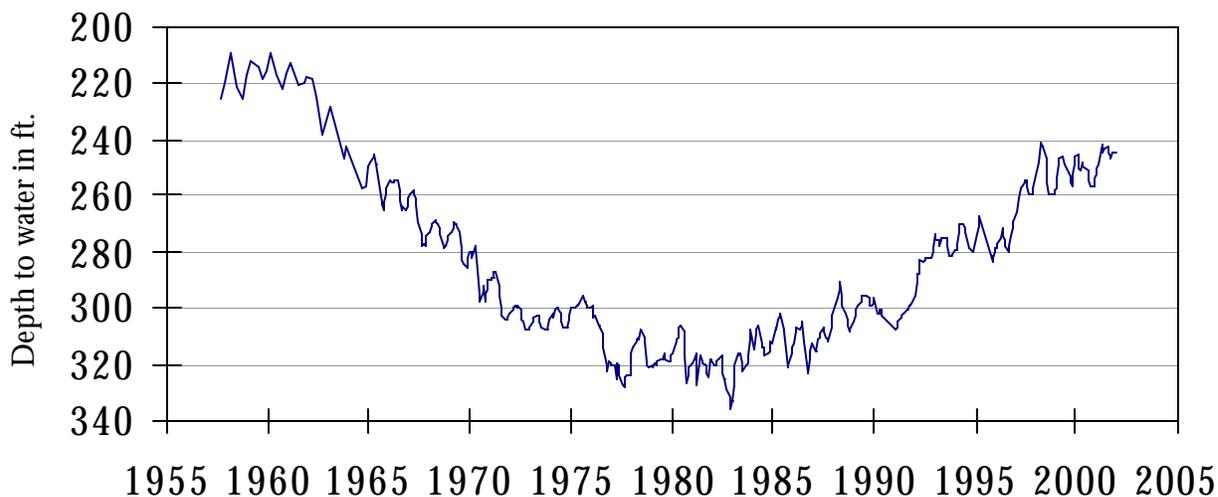
The late November water-level measurement in this Hosston Formation Trinity aquifer well, elevation 823 feet above sea level, was 445.52 feet below land surface. This measurement was 3.73 feet above last month's measurement, 2.97 feet below last year's measurement, and 153.52 feet below the initial measurement recorded in 1955.

**Well No. 49-13-301  
El Paso, El Paso County  
Bolson Deposits**



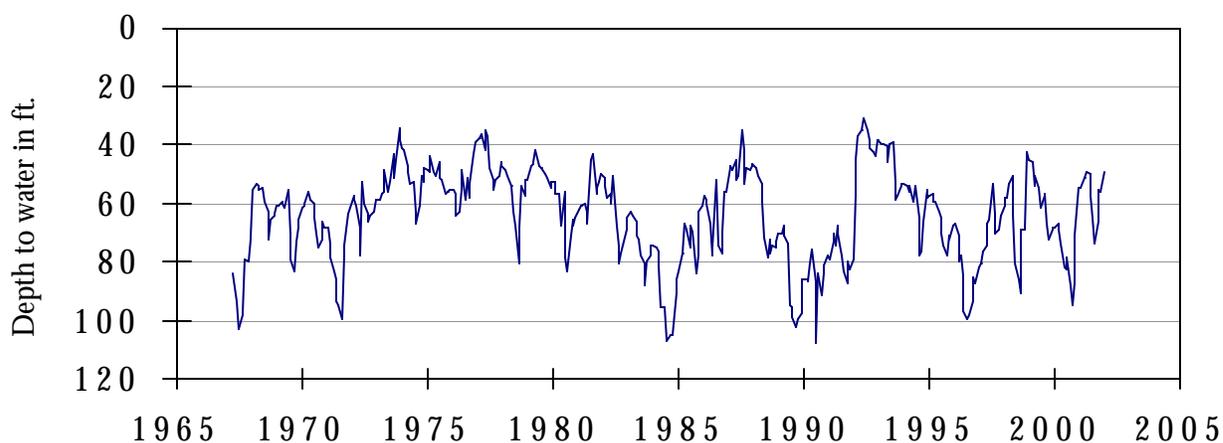
The late November water-level measurement in this Hueco Bolson aquifer well, elevation 3,882 feet above sea level, was 285.90 feet below land surface. This was 0.79 feet above last month's measurement, 1.08 feet below last year's measurement, and 54.00 feet below the initial measurement recorded in 1964.

**Well No. 65-14-409  
Alief, Harris County  
Evangeline**



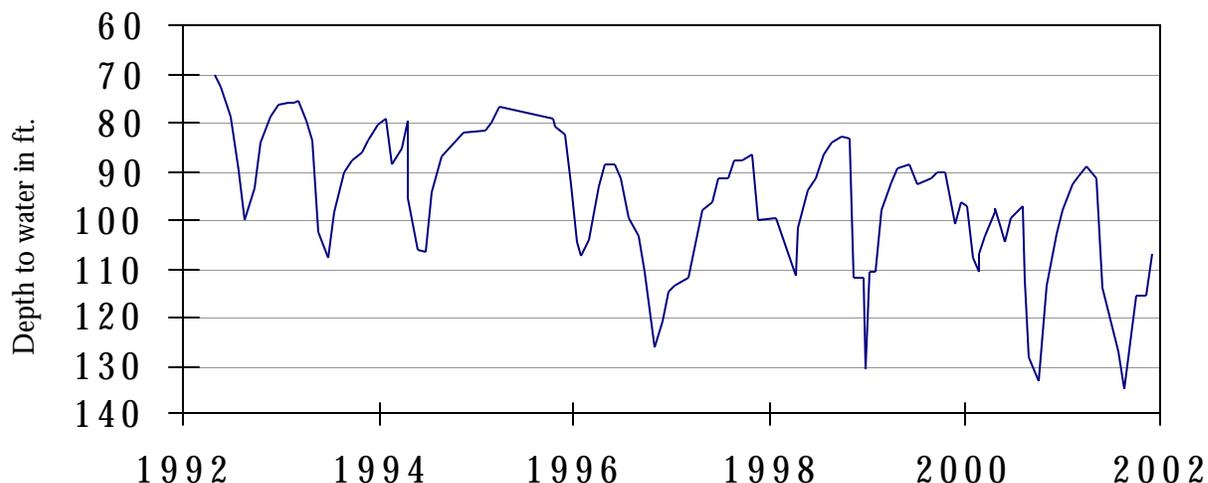
The late November water-level measurement in this Evangeline Formation Gulf Coast aquifer well, elevation 66 feet above sea level, was 244.36 feet below land surface. This was 0.34 feet below last month's measurement, 9.52 feet above last year's measurement, and 141.13 feet below the initial measurement recorded in 1947.

**Well No. 68-37-203 (J-17)  
In San Antonio, Bexar County  
Edwards and Associated Limestones**



The late November water-level measurement in this Edwards (BFZ) aquifer well, elevation 731 feet above sea level, was 48.80 feet below land surface. This was 6.87 feet above last month's measurement, 5.96 feet above last year's measurement, and 10.82 feet above the initial measurement recorded in 1962.

**Well No. 68-60-912  
Between Poteet and Pleasanton, Atascosa County  
Carrizo**



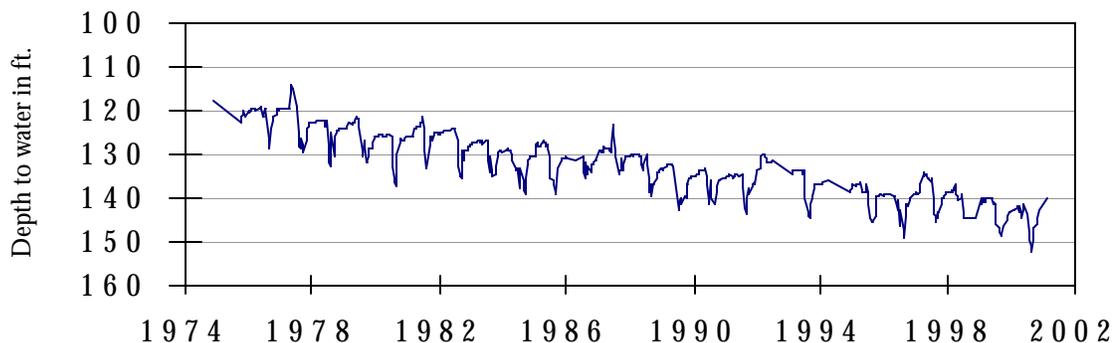
-The late November water-level measurement in this Carrizo aquifer well, elevation 446 feet above sea level, was 106.83 feet below land surface. This measurement was 8.79 feet above last month's measurement, 4.08 feet below last year's measurement, and 25.58 feet below the initial measurement recorded in 1965.

***HYDROGRAPH OF THE MONTH***



Each month this space features a new hydrograph (marked with the • symbol on the map) depicting different aquifers and different conditions in Texas.

**Well No 5606614  
McCulloch County**



This 641 ft. deep recorder well, located approximately 13 miles south of Brady, at an elevation of 1743 feet above sea level, was completed in the Hickory aquifer. The water levels reflect seasonal aquifer drawdown due to irrigation demands coupled with increasing domestic water needs and inadequate aquifer recharge.